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Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference 150200052971	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/JP02/09975	International filing date (day/month/year) 26 September 2002 (26.09.02)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC H01L 21/56, 23/12		
Applicant HITACHI, LTD.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 26 September 2002 (26.09.02)	Date of completion of this report 03 June 2003 (03.06.2003)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP02/09975

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP 02/09975

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	6-13, 16	YES
	Claims	1-5, 14, 15	NO
Inventive step (IS)	Claims		YES
	Claims	1-16	NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations

The documents that are cited in the international search report are indicated as "documents 1 and 2," as follows:

Document 1: JP 2002-9111 A (Mitsui High-tec Inc.), 11 January 2002

Document 2: JP 2000-150582 A (Matsushita Electric Ind. Co., Ltd.), 30 May 2000

1. Claims 1-5

The invention that is set forth in claims 1-5 of the present application is disclosed in document 1 (fig. 1-4 and paragraphs [0014] to [0021]); therefore, it lacks novelty and does not involve an inventive step. In addition, the invention that is disclosed in document 1 pertains to the so-called underfilling of the "semiconductor chip (19)." Whether or not it is underfilled, the semiconductor chip in question is nonetheless sealed by means of a resin, and it is common practice to seal the entirety of a semiconductor chip by means of the resin that is used for underfilling

2. Claims 6 and 7

Transfer molding methods and potting methods are common practice methods for sealing by means of a resin; therefore, it would be easy for a person skilled in the art to employ such methods. Consequently, the inventions that are set forth in claims 6 and 7 of the present application do not involve an inventive step.

3. Claim 8

It is impossible to find any disclosures pertaining to step (b) in the description; therefore, the effects from said step are presumed to be so obvious as to not require a disclosure in the description. As such, it would be easy for a person skilled in the art to configure such a step; consequently, the invention that is set forth in claim 8 of the present application does not involve an inventive step.

4. Claims 9-13

Refer to document 1 (fig. 1-4 and paragraphs [0014] to [0021]) and document 2 (fig. 5-7 and paragraphs [0004] to [0013]).

In the sections indicated above, document 2 discloses an LOC-type semiconductor device, and it would be easy for a person skilled in the art to conceive of applying the production method that is disclosed in document 1 in the production of said device; consequently, the invention that is set forth in claims 9-13 of the present application does not involve an inventive step.

5. Claims 14 and 15

In the invention that is disclosed in document 1, the production method is obviously configured using a schedule wherein after being subjected to a baking process, a device is inspected and is then soldered.

Consequently, the invention that is set forth in claims 14 and 15 of the present application lacks novelty and does not involve an inventive step.

6. Claim 16

Pb-free soldering is well-known technology; therefore, it would be easy for a person skilled in the art to conceive of mounting the electronic devices that are produced via the production method disclosed in document 1 by means of Pb-free soldering. Consequently, the invention that is set forth in claim 16 of the present application does not involve an inventive step.